

REMARKS

This Response is being filed in response to the Office Action dated June 17, 2003. Claims 1-12 are currently pending in the application. Of these, claim 1 is independent. Claims 1-12 stand rejected in the outstanding Office Action. No amendments have been made herein and therefore new matter has been added. Favorable reconsideration of the application is respectfully requested in light of the following remarks.

Prior to addressing the rejections set forth in the Office Action, Applicants take this opportunity to set forth the following brief remarks in connection with the invention, which relates to a magnetic tape having a high recording density, which permits recording and reproduction to be executed with high reliability. The invention possesses desirable characteristics such as minimal size change in the width direction with respect to temperature and humidity change, high output, good tracking characteristics and high running characteristics. The invention also provides minimal output fluctuation, even when a servo signal is executed, and therefore is exceptionally advantageous in a system having a function of executing the tracking control by a servo signal.

The invention provides for a magnetic tape that can possess all the above mentioned qualities by providing a magnetic tape suitable for recording a signal with a 10-100 Mbit/cm² surface recording density comprising a back coating layer, a support and a non-magnetic layer containing a non-magnetic powder and a binder, wherein the magnetic tape has temperature and humidity expansion coefficients in a width direction of 0.0015% or less, an offset yield strength in a longitudinal direction of 10N or more, a rupture strength of 30N or more, and an average roughness on the surface of the support of 1.0 nm or less on the coating surface side of the magnetic layer and 3.0-9.0 nm on the coating surface side of the back coating

layer, and 10 pieces/100cm² or less projections with a height of 273 nm or more on the coating surface side of the magnetic layer.

It has been found that stable tracking characteristics can be achieved by restraining the temperature and humidity expansion coefficients in the width direction of the magnetic tape, and reinforcing the dynamic strength in the tape longitudinal direction so as to reduce the size change, particularly in the tape width direction, in a magnetic tape for recording a signal with the specified surface recording density. Additionally, it has also been found that excellent durability, recording and reproduction characteristics can be acquired if the center plane average roughness (S_{Ra}) is as claimed in claim 1, and the magnetic layer coating surface side comprises projections also as specified in claim 1.

Objection of the Specification Under 37 CFR 1.71

The specification was objected to under 37 CFR 1.71 as failing to provide full and clear terms as to enable any person skilled in the art to make the invention. According to the Examiner, the application does not explain how to control and achieve the properties recited in the claims, namely thermal expansion, humidity expansion, rupture strength and offset yield strength. Applicants respectfully assert that it is well known to those of ordinary skill in the art that the formulation of the support or the coating layers such as the magnetic layer, non-magnetic layer, and the back coating layer can control the thermal expansion coefficient, the humidity expansion coefficient, the rupture strength and offset yield strength. For example, see U.S. Patent No. 6,228,461.

By raising the draw ratio at the time of film formation, the thermal expansion coefficient and the humidity expansion coefficient can be decreased, and the rupture strength, the offset yield strength and the Young's modulus can be increased. Additionally, thermal and humidity expansion coefficients can be decreased and rupture strength and offset yield strength

can be increased by increasing the crosslinking density of the coating layers, using binders having a higher glass transition temperature or increasing a filling of the magnetic layer, all of which is within the skill in the art.

The Examiner also stated that the specification is objected to because "A/B" in Table 1 on page 38 was undefined. Applicants respectfully submit that it is clear in the specification that "A" represents the surface of the support facing the nonmagnetic layer and the magnetic layer and that "B" represents the surface of the support facing the back coating layer. Compare paragraph 14, discussing these layers, with Tables 1 and 4 and paragraphs 108 and 109.

Applicants respectfully assert that the specification does not exhibit the ambiguities alleged by the Examiner and accordingly request that the Examiner withdraw his objection to the specification under 37 C.F.R. 1.71.

Rejection of Claims Under 35 U.S.C. §112, first paragraph

Claims 1-12 were rejected in the June 17, 2003 Office Action under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. According to the Examiner, the application does not explain how to control and achieve the properties recited in the claims, namely thermal expansion, humidity expansion, rupture strength and offset yield strength. As stated above, Applicants respectfully assert that it is known in the art that thermal expansion coefficient, humidity expansion coefficient, rupture strength and offset yield strength are controllable by the formulation of the support or the coating layers such as the magnetic layer, non-magnetic layer, and the back coating layer, and accordingly, the same arguments apply and will not be reiterated.

Accordingly, Applicants respectfully submit that claims 1-12 are in condition for allowance.

No fee other than the petition for extension of time is deemed necessary in connection with the filing of this Response. However, if any fee is required, the Examiner is hereby authorized to charge the amount of such fee to Deposit Account No. 19-4709.

Respectfully submitted,



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